



Appendix B – Biological Review

BIOLOGICAL REVIEW

SR 101L Traffic Interchange to New River
Project No. 017-A()
TRACS No. 017 MA 215 H5162 01L

Prepared for

Arizona Department of Transportation
Environmental Planning Group
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1. PROJECT LOCATION

The project area extends 17.5 miles from northern Phoenix to the community of New River in Maricopa County, Arizona (Figures 1 through 3). The project study area begins just south of the Interstate 17 (I-17)/State Route (SR) 101L Traffic Interchange (TI) at Milepost (MP) 214.5 and ends at the New River Road TI (MP 232.0).

2. PROJECT DESCRIPTION

The existing I-17 mainline in the area north of SR 101L consists of two 12-foot (ft) lanes in each direction, with a 10-ft outside and 4-ft inside shoulder. The northbound and southbound I-17 lanes are separated by an unpaved median that varies in width from 60 ft between Rose Garden Lane and Happy Valley Road to 76 ft north of Happy Valley Road. The project area includes 10 TIs, located at Utopia Drive/Yorkshire Drive, SR 101L (Beardsley Road), Rose Garden Lane, Deer Valley Road, Pinnacle Peak Road, Happy Valley Road, Carefree Highway (SR 74), Pioneer Road, Anthem Way, and New River Road. In addition, a new TI is currently under construction at Daisy Mountain Road. The major drainages along the roadway include Scatter Wash, Skunk Creek, Central Arizona Project (CAP) Canal, Deadman Wash, and the New River. The speed limit in the project area varies from 55 miles per hour (mph) at the southern project limit, to 65 mph north of Deer Valley Road, to 75 mph north of Happy Valley Road.

A frontage road system comprised of one-way and two-way roads are located adjacent to various segments of the highway, as follows: one-way frontage roads from SR 101L to Pinnacle Peak Road; two-way frontage roads from Happy Valley Road TI that end north of the CAP Canal; a two-way road east of I-17 intersects Anthem Way and New River Road; and a two-way road west of I-17 extends north of Anthem Way and ends south of New River.

The proposed improvements would consist of the addition of general purpose and high occupancy vehicle (HOV) lanes within the study area. The full build-out of the project would ultimately provide five travel lanes and an HOV lane in each direction between SR 101L and Carefree Highway (SR 74), and four travel lanes and an HOV lane in each direction between Carefree Highway and New River. It is anticipated that the improvements would be constructed in segments to meet travel demand within available funding limits over the next 5 to 10 years, with an interim widening to three travel lanes and an HOV lane in each direction.

The preferred alternative would widen the roadway by placing new lanes to the inside of the existing I-17 travel lanes, utilizing the existing median area. In most locations south of Carefree Highway, the frontage roads would need to be shifted outward to accommodate auxiliary lanes. The roadway would include 10-foot (ft) to 12-ft inside and outside shoulders. A median barrier would be provided and the existing median would be paved to accommodate the additional shoulder and HOV lanes. North of Happy Valley Road, where the median widens, the median would accommodate part or all of two additional travel lanes. An outside travel lane and shoulder, and, in some places, an auxiliary lane, would extend beyond the existing paved roadway.

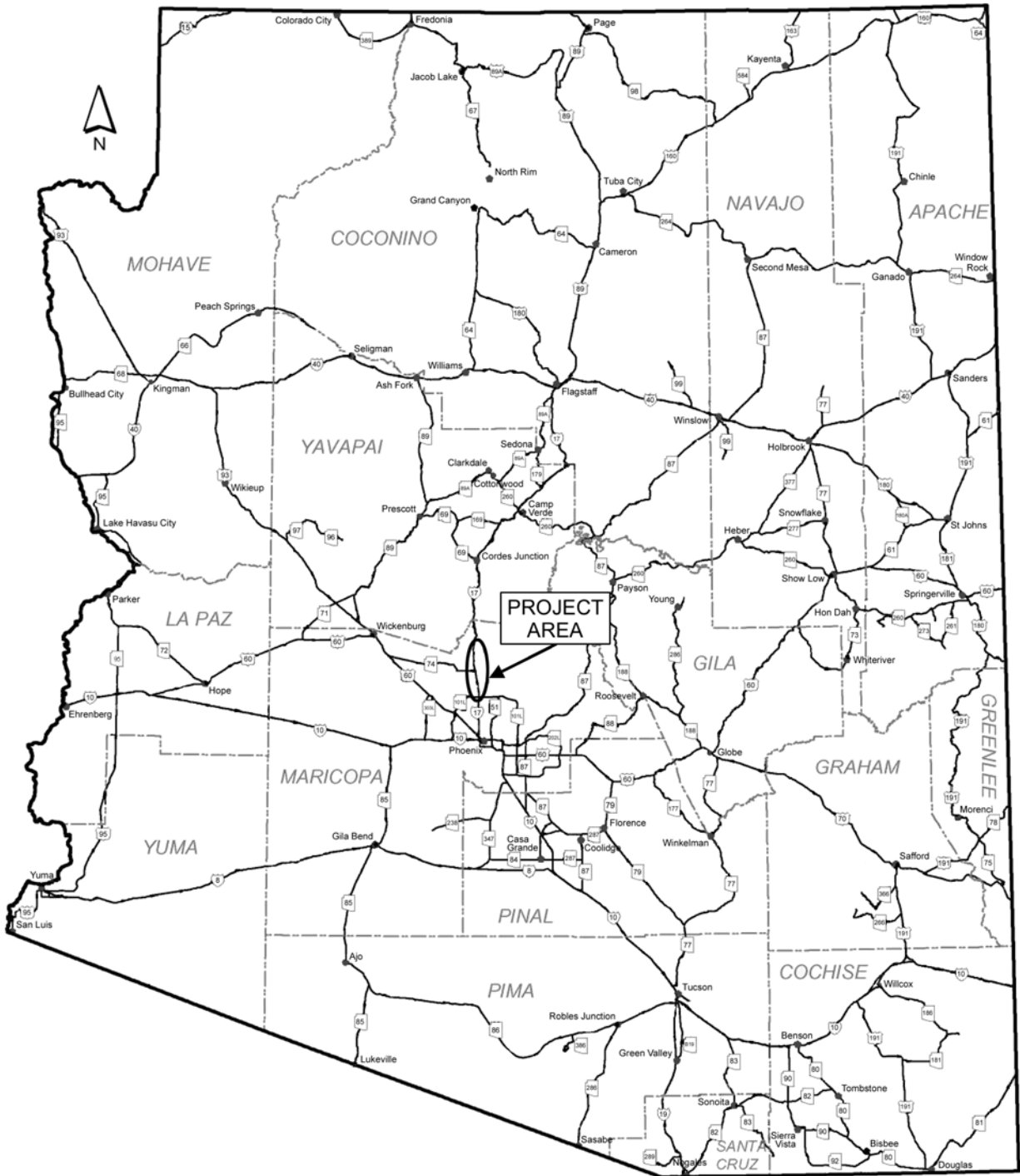


Figure 1 – State Location Map
Project No. 017-A()
TRACS No. 017 MA 215 H5162 01L

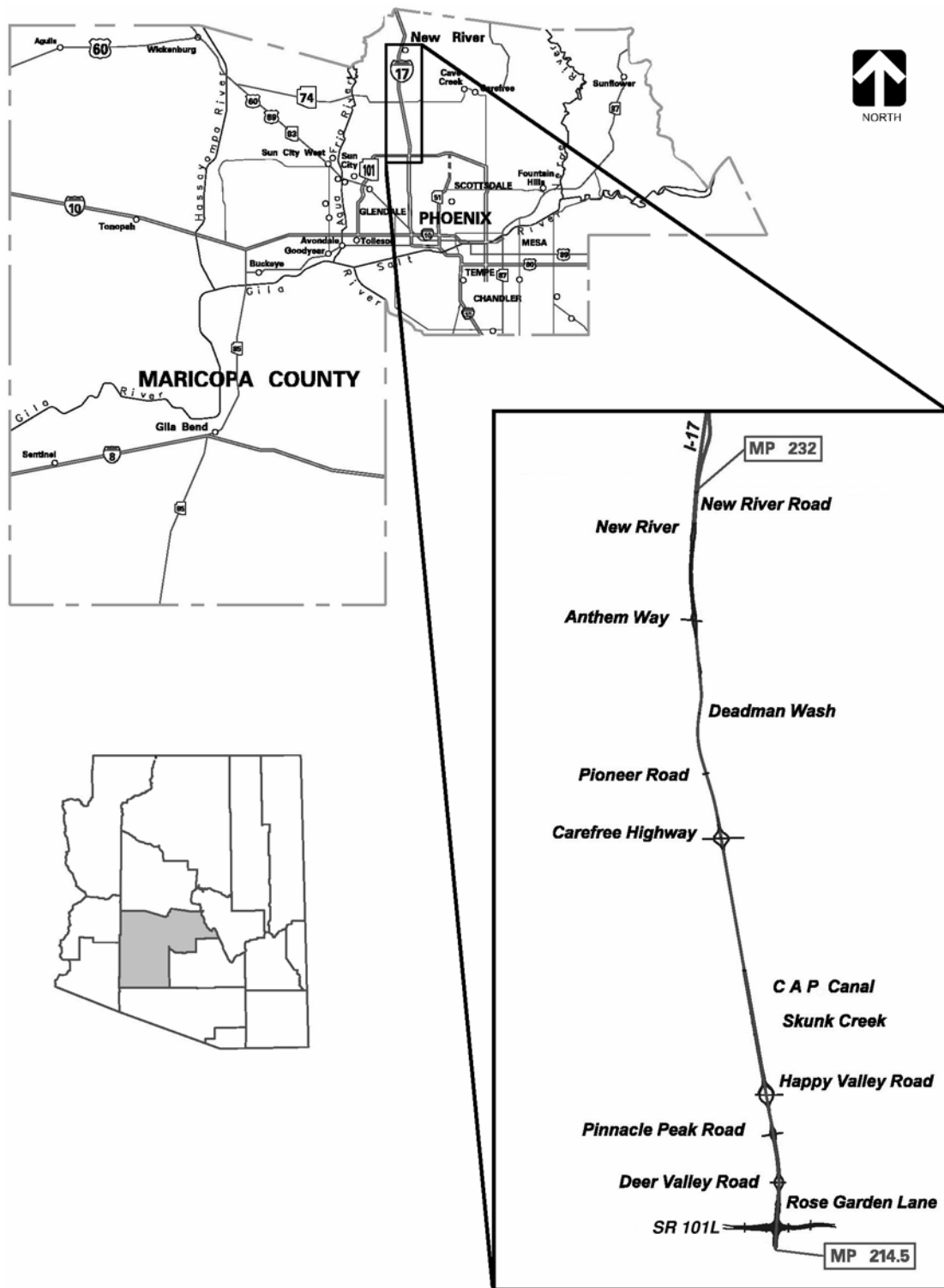


Figure 2 – Project Vicinity Map
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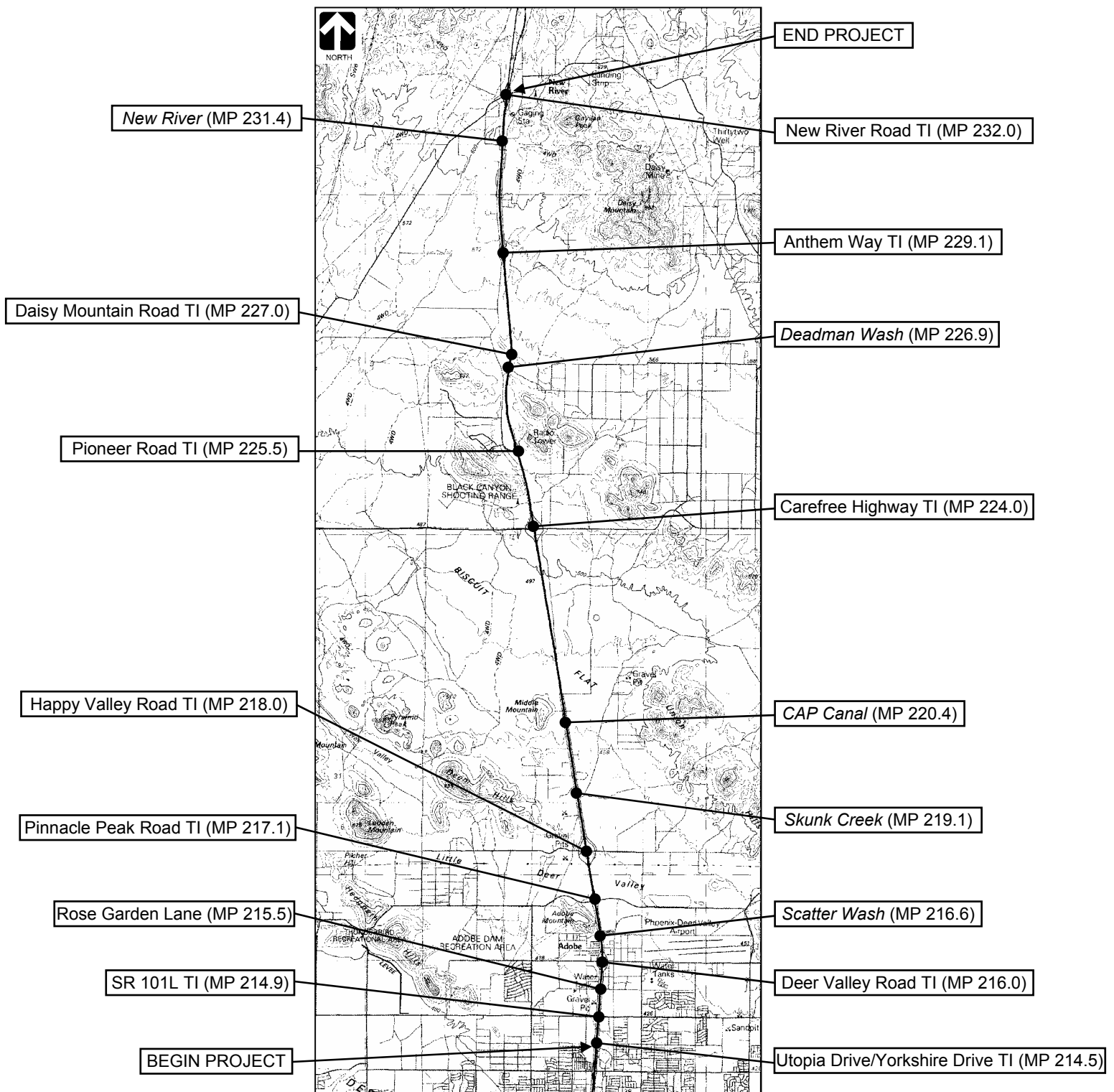


Figure 3 – Project Area Map
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In addition, the preferred alternative would involve extending the existing frontage roads to provide continuous one-way frontage roads from Happy Valley Road north to Carefree Highway, and converting the existing two-way frontage roads to one-way operations. The new frontage roads would be 28 ft wide, with a minimum 18-ft separation from the I-17 mainline pavement. In some areas, a barrier would separate the frontage road from the mainline to reduce the need for new right-of-way (R/W) acquisition. This reduced cross section would be used in both directions between Rose Garden Lane and Deer Valley Road and in the southbound direction from south of Dynamite Road to north of the Central Arizona Project (CAP) Canal.

From Rose Garden Lane to Carefree Highway, the proposed improvements would require a total mainline pavement width of 97 to 109 ft. For the proposed urban cross section from Carefree Highway to the New River TI, the mainline would have a pavement width of 97 ft in each direction, including auxiliary lanes. Where additional R/W is required, the project would extend the existing R/W by 18 to 30 ft in many locations, and up to 91 ft where drainage improvements are required.

To accommodate the increased roadway width, the bridges across Skunk Creek, CAP Canal, Deadman Wash, and New River would require widening. The crossing of Scatter Wash and other unnamed ephemeral drainages would require the extension of existing culverts.

To provide room for additional lanes on I-17 through the SR 101L interchange, the existing I-17 structures that pass over SR 101L and the eastbound and westbound frontage roads would require widening. The Deer Valley TI overpass would require widening on both sides, while the TI structures at Pinnacle Peak Road and Happy Valley Road would require replacement. The Pioneer Road TI structure would require modification and the New River TI overpass would require widening on both sides.

Proposed drainage improvements would include a channel, 24 to 36 ft wide and 3 to 6 ft deep, on the east side of I-17 to collect and transport runoff between Skunk Creek and Scatter Wash. This channel would discharge into Scatter Wash. An 18-acre detention basin is proposed west of I-17 south of Scatter Wash to accommodate runoff from the widened pavement and to provide adequate drainage in the area.

3. PROJECT AREA

The existing I-17 mainline in the area north of SR 101L consists of two 12-ft lanes in each direction, with a 10-ft outside shoulder and 4-ft inside shoulder. The northbound and southbound I-17 lanes are separated by an unpaved median that varies in width from 60 ft between Rose Garden Lane and Happy Valley Road to 76 ft north of Happy Valley Road.

Lands within the I-17 project area consist of public and private lands. Private lands in the project area are within the jurisdictions of the City of Phoenix and Maricopa County. Publicly owned lands in the project area predominantly consist of Arizona State Trust Land. Other public lands along the project area are owned by the Arizona Game and Fish Department (Ben Avery

Shooting and Recreation Area), City of Phoenix, Flood Control District of Maricopa County (Skunk Creek), and Bureau of Reclamation (CAP Canal).

The land uses consist of a mixture of commercial, residential, recreational, and undeveloped. The southern section of the project area, which includes the areas south of Happy Valley Road to the SR 101L TI, is urban and densely developed. The northern section of the project area, which includes the area north of Happy Valley Road to New River, is largely undeveloped and rural in nature, with grazing as the predominant land use. Residences and commercial properties are present in the Anthem and New River areas. This area is growing and an increasing number of residential and commercial properties are becoming established.

The preferred alternative would require the acquisition of 57.0 acres of new R/W adjacent to I-17. This would consist of 17.0 acres of undeveloped public lands and 40.0 acres of private land. The majority of the affected property consists of undeveloped lands or property on which buildings or facilities are planned but have not yet been constructed. The lands affected include industrial properties, commercial and office lands, and residential property. The areas affected by the proposed highway improvements would consist of the highway median and highway roadside areas, which are vegetated primarily with roadside weeds and grasses.

The project area is located within the Basin and Range geological province. The terrain is characterized by broad areas of alluvial fans and terraces separated by desert foothills and drainage channels. The grades are generally flat. Soils in this area consist of various well-drained, gravelly, and loamy surface soils. These soil types range from cobbly to very gravelly clays and loams with rock outcroppings. Scatter Wash, Skunk Creek, Deadman Wash, New River, and 16 unnamed ephemeral washes traverse the project area.

The project area is located within the lower Colorado Sonoran desertscrub biome, but exhibits two ecosystem types due to varying levels of development. The southernmost portion of the project area, from the SR 101L TI to the Happy Valley Road TI, is characterized by urban development, where vegetation is generally limited to common landscaping species, grasses, and creosotebush. This area has little forage value to support wildlife. From the Happy Valley Road TI northward to New River, the biological community is more natural in composition, although recent development and construction impacts have negatively affected the ecosystem and quality of wildlife habitat. This area is dominated by creosotebush and saguaros, but also includes mesquite, acacia, and palo verde trees along wash channels.

The only riparian habitat in the vicinity of the project is located along the New River. The preferred alternative would not affect this habitat, as it is located more than ¼ mile northeast of the project area. Xeroriparian habitat is present at the I-17 crossings of New River and Deadman Wash. The preferred alternative would require widening the New River and Deadman Wash bridges to provide adequate width for the additional roadway. However, at these locations, all construction would occur within the previously disturbed R/W.

Areas of natural desert vegetation within the project area consist of typical species. The project area is characteristic of the Lower Colorado River subdivision of the Sonoran desertscrub community, containing palo verde-cacti-mixed scrub and creosotebush scrub. Primary vegetation

includes palo verde, mesquite, numerous species of cactus, and creosotebush. The section of the project south of Happy Valley Road presents an urban, developed landscape in which very little natural vegetation is present, and most plants in the area consist of typical native and non-native landscaping species.

4. SPECIES IDENTIFICATION

The U.S. Fish and Wildlife Service's list of endangered, threatened, candidate, and proposed species for Maricopa County (Table) was reviewed by a qualified biologist to determine species potentially occurring in the project vicinity.

Maricopa County Species List

Common Name	Scientific Name	Listing Status
Arizona agave	<i>Agave arizonica</i>	Endangered
Arizona cliffrose	<i>Purshia subintegra</i>	Endangered
Arizona hedgehog cactus	<i>Echinocereus triglochidiatus arizonicus</i>	Endangered
Bald eagle	<i>Haliaeetus leucocephalus</i>	Threatened
Cactus ferruginous pygmy-owl	<i>Glaucidium brasilianum cactorum</i>	Endangered
California brown pelican	<i>Pelecanus occidentalis californicus</i>	Endangered
Desert pupfish	<i>Cyprinodon macularius</i>	Endangered
Gila chub	<i>Gila intermedia</i>	Proposed Endangered
Gila topminnow	<i>Poeciliopsis occidentalis occidentalis</i>	Endangered
Lesser long-nosed bat	<i>Leptonycteris curasoae yerbabuenae</i>	Endangered
Mexican spotted owl	<i>Strix occidentalis lucida</i>	Threatened
Razorback sucker	<i>Xyrauchen texanus</i>	Endangered
Sonoran pronghorn	<i>Antilocapra americana sonoriensis</i>	Endangered
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	Endangered
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	Candidate
Yuma clapper rail	<i>Rallus longirostris yumanensis</i>	Endangered

5. HABITAT

- a. Arizona agave
 Occupied habitat present _____
 Suitable/critical unoccupied habitat present _____
 No suitable/critical habitat present X

- b. Arizona cliffrose
Occupied habitat present _____
Suitable/critical unoccupied habitat present _____
No suitable/critical habitat present X
- c. Arizona hedgehog cactus
Occupied habitat present _____
Suitable/critical unoccupied habitat present _____
No suitable/critical habitat present X
- d. Bald eagle
Occupied habitat present _____
Suitable/critical unoccupied habitat present _____
No suitable/critical habitat present X
- e. Cactus ferruginous pygmy-owl
Occupied habitat present _____
Suitable/critical unoccupied habitat present X
No suitable/critical habitat present _____
- f. California brown pelican
Occupied habitat present _____
Suitable/critical unoccupied habitat present _____
No suitable/critical habitat present X
- g. Desert pupfish
Occupied habitat present _____
Suitable/critical unoccupied habitat present _____
No suitable/critical habitat present X
- h. Gila chub
Occupied habitat present _____
Suitable/critical unoccupied habitat present _____
No suitable/critical habitat present X
- i. Gila topminnow
Occupied habitat present _____
Suitable/critical unoccupied habitat present _____
No suitable/critical habitat present X
- j. Lesser long-nosed bat
Occupied habitat present _____
Suitable/critical unoccupied habitat present X
No suitable/critical habitat present _____

- k. Mexican spotted owl
 Occupied habitat present _____
 Suitable/critical unoccupied habitat present _____
 No suitable/critical habitat present X
- l. Razorback sucker
 Occupied habitat present _____
 Suitable/critical unoccupied habitat present _____
 No suitable/critical habitat present X
- m. Sonoran pronghorn
 Occupied habitat present _____
 Suitable/critical unoccupied habitat present _____
 No suitable/critical habitat present X
- n. Southwestern willow flycatcher
 Occupied habitat present _____
 Suitable/critical unoccupied habitat present _____
 No suitable/critical habitat present X
- o. Yellow-billed cuckoo
 Occupied habitat present _____
 Suitable/critical unoccupied habitat present _____
 No suitable/critical habitat present X
- p. Yuma clapper rail
 Occupied habitat present _____
 Suitable/critical unoccupied habitat present _____
 No suitable/critical habitat present X

6. EFFECTS

- a. Arizona agave
 Occupied habitat affected Yes _____ No X
 Suitable/critical unoccupied habitat affected Yes _____ No X
- b. Arizona cliffrose
 Occupied habitat affected Yes _____ No X
 Suitable/critical unoccupied habitat affected Yes _____ No X
- c. Arizona hedgehog cactus
 Occupied habitat affected Yes _____ No X
 Suitable/critical unoccupied habitat affected Yes _____ No X

- d. Bald eagle
Occupied habitat affected Yes _____ No X
Suitable/critical unoccupied habitat affected Yes _____ No X
- e. Cactus ferruginous pygmy-owl
Occupied habitat affected Yes _____ No X
Suitable/critical unoccupied habitat affected Yes _____ No X
- f. California brown pelican
Occupied habitat affected Yes _____ No X
Suitable/critical unoccupied habitat affected Yes _____ No X
- g. Desert pupfish
Occupied habitat affected Yes _____ No X
Suitable/critical unoccupied habitat affected Yes _____ No X
- h. Gila chub
Occupied habitat affected Yes _____ No X
Suitable/critical unoccupied habitat affected Yes _____ No X
- i. Gila topminnow
Occupied habitat affected Yes _____ No X
Suitable/critical unoccupied habitat affected Yes _____ No X
- j. Lesser long-nosed bat
Occupied habitat affected Yes _____ No X
Suitable/critical unoccupied habitat affected Yes _____ No X
- k. Mexican spotted owl
Occupied habitat affected Yes _____ No X
Suitable/critical unoccupied habitat affected Yes _____ No X
- l. Razorback sucker
Occupied habitat affected Yes _____ No X
Suitable/critical unoccupied habitat affected Yes _____ No X
- m. Sonoran pronghorn
Occupied habitat affected Yes _____ No X
Suitable/critical unoccupied habitat affected Yes _____ No X
- n. Southwestern willow flycatcher
Occupied habitat affected Yes _____ No X
Suitable/critical unoccupied habitat affected Yes _____ No X

- o. Yellow-billed cuckoo
Occupied habitat affected Yes _____ No X
Suitable/critical unoccupied habitat affected Yes _____ No X
- p. Yuma clapper rail
Occupied habitat affected Yes _____ No X
Suitable/critical unoccupied habitat affected Yes _____ No X

7. FINDING

Finding: All listed species

- X No affect to species or its habitat
_____ May affect species, not likely to adversely affect species or its habitat
_____ May beneficially affect species or its habitat
_____ Likely to adversely affect species or its habitat

8. SIGNATURES

Prepared by: _____ Date: _____
Laura N. Gerbis

Reviewed/approved by: _____ Date: _____
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